

NOAA Ship
**MALCOLM
BALDRIGE
R103**

A Message From The Captain

On behalf of the officers and crew of the ship *Malcolm Baldrige*, I welcome you aboard.

The marine environment is one of our most challenging frontiers. The *Malcolm Baldrige* and ships like it are leading the way in exploring, describing, and comprehending this complex world of ocean, atmosphere, and marine life.

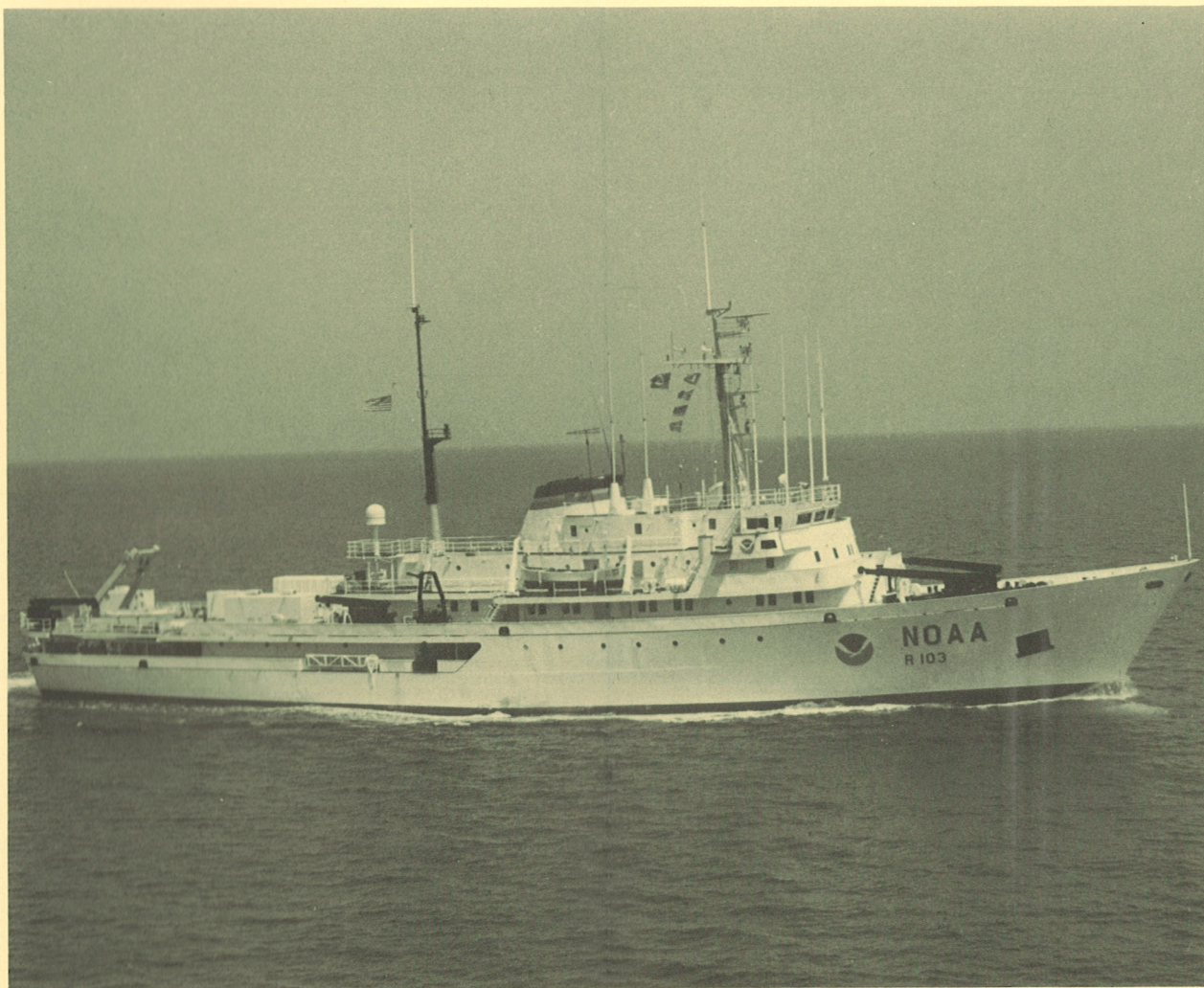
The officers and crew of the *Malcolm Baldrige* are at your disposal and will gladly answer any questions concerning the ship and its activities.

Commanding Officer
Malcolm Baldrige



U.S. DEPARTMENT
OF COMMERCE
National Oceanic and
Atmospheric
Administration

National Ocean Service



**Welcome
Aboard
MALCOLM
BALDRIGE
R103**

The *Malcolm Baldrige* is a highly automated ocean research ship from the scientific fleet of NOAA, the National Oceanic and Atmospheric Administration of the U.S. Department of Commerce.

The primary mission of the *Malcolm Baldrige* is to conduct oceanographic research through the vessel's capability to provide a wide variety of physical, geological, geophysical, and other marine environmental sensing and sampling operations.

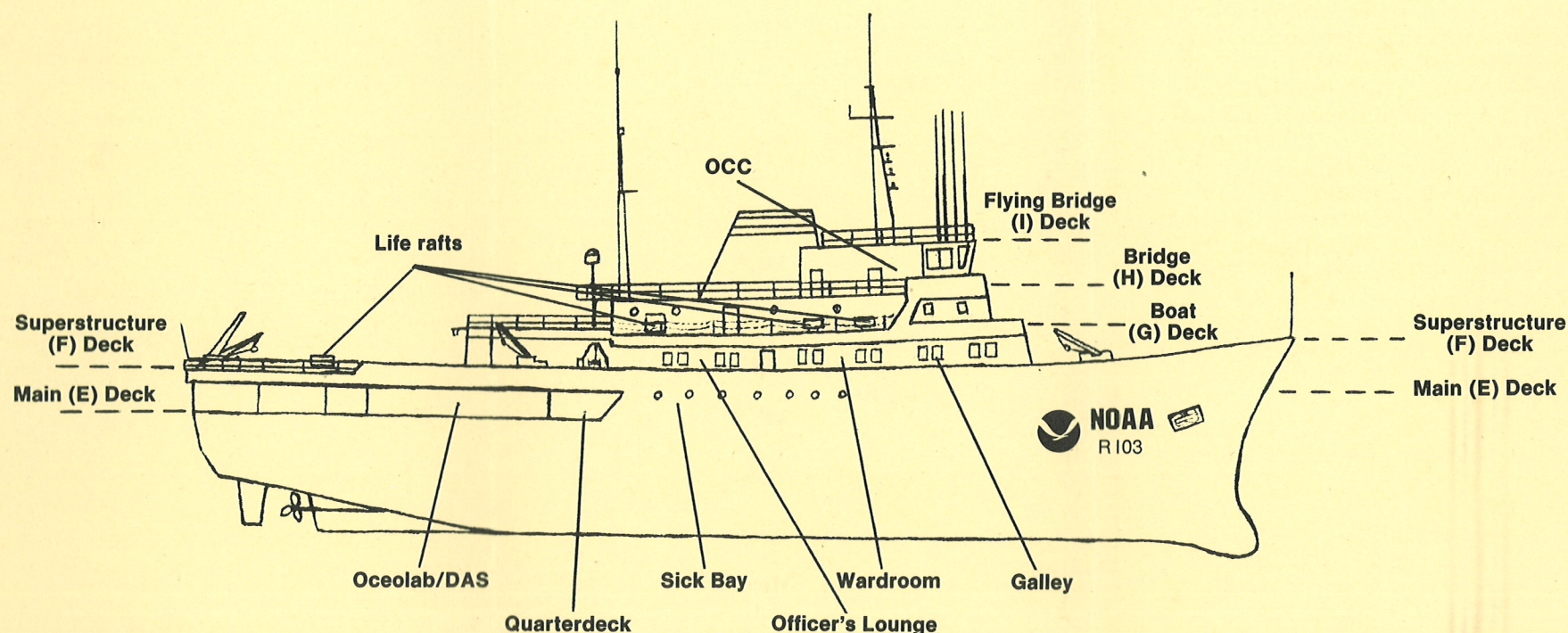
First of a new and relatively compact type of marine environmental platform, the class I survey ship is 278 feet 3 inches long, has a 51-foot beam, and displaces 2,963 tons. The *Malcolm Baldrige* is propelled by two 1,600-shp geared diesels driving controllable-pitch twin screws. A 450-hp, 360-degree, retractable bow thruster propels the ship at slow speeds and assists in holding the ship's heading during on-station operations.

The ship has an 11,000 nautical-mile range at 13.5 knots. It can be provisioned for more than a month at sea.

Enclosed areas on board are air-conditioned for crew comfort and efficiency while working in extreme latitudes. Scientific facilities include an oceanographic laboratory, gravity meter room, photo lab, bow observation chamber, operations control center, and plotting room. Accommodations are provided for a normal complement of 8 commissioned officers, 43 crew, and as many as 30 scientists.

A versatile oceanographic research and survey vessel, the *Malcolm Baldrige* can handle a wide variety of oceanographic, geophysical, and other marine environmental sensing and sampling operations. Operations underway include continuous hydrographic, magnetic, gravity, and surface temperature measurements. Meteorological, bathythermographic, and geomagnetic-electrokinetographic observations are made at intervals while the ship is underway. Seismic reflection profiles (which reveal sub-bottom geological structure) and biological tows and trawls are made at reduced speeds.

To provide accurate, continuous depth records in water of all depths, the ship carries three shoal-water echo sounders, two deep-water echo sounders, a stabilized narrow-beam echo sounder (which permits the ship to run high-accuracy depth profiles even in heavy seas) with side-looking capability.



The ship measures magnetic field intensity with a towed proton procession sensor. Gravitational field strength is measured underway by a device which separates ship motion from the actual gravity field.

The ship's geographic position at sea can be established with a high degree of accuracy. For precise positioning of offshore surveys, several electronic position-fixing systems are available. For deepsea navigation, the *Malcolm Baldrige* uses both the Satellite Navigation and Omega systems with worldwide capabilities, and Loran-C where such coverage is available. The NAVSTAR Global Positioning System (GPS) is another method of satellite navigation. Celestial navigation supplements other methods when necessary.

An automatic gyropilot and repeaters and course recorders located at appropriate stations

are integral parts of the navigation system. A magnetic compass is also available. The ship carries two navigation radars. Communications facilities cover intermediate through high frequencies, with very-high frequency systems available for ship-auxiliary launch communications. The ship also has INMARSAT capabilities.

Several small, open boats, including a Rigid Hull Inflatable Boat (RHIB), are carried as utility and diver support craft. The ship's after deck can be rigged with a portable landing pad for helicopter operations.

The *Malcolm Baldrige's* first-rate oceanographic capabilities have evolved from operational experience with previously commissioned class I vessels like the ships *Oceanographer* and *Discoverer*. Its uniquely advanced data-acquisition system records scientific data auto-

matically from sensors aboard and suspended from the ship. A computer at the heart of the system automatically records and processes geophysical, oceanographic, hydrographic, and meteorological data, and logs the ship's position continuously and routinely.

In addition to performing the usual on-station oceanographic tasks—e.g., STD (salinity-temperature-depth) measurements, coring and other bottom sampling operations, heat-flow probes, and deep-water sampling—the *Malcolm Baldrige* also is capable of launching and retrieving small research submersibles, core samplers, dredges, buoys, and other oceanographic equipment.

To aid in oceanographic and survey operations, a variety of winches, booms, and cranes are available. A deep-sea winch is located on the superstructure deck at three-quarter length,

with power unit and double-storage units holding 45,000 feet each of 9/16-inch, 3 x 19 wire below. Two oceanographic winches with interchangeable drums for 30,000 feet of 3/16-inch wire, 12,000 feet of logging cable, and 6,000 feet of 3/8-inch wire, are located port and starboard on the superstructure deck mid-length. Five 4,300 pound capacity service cranes are located on the superstructure deck. A 20,000-pound capacity A-frame on the stern is also available for handling heavy equipment.

The *Malcolm Baldrige's* oceanographic laboratory, including the scientific data center, opens on the afterdeck work area. Facilities include peripheral laboratory benches served by fresh and salt water, compressed air, and 440-, 220-, and 110-volt ac power. Instrumentation and equipment for centralized observation and data processing are provided in the data center. The large Inui bow bulb housing the ship's depth sounder transducer also contains an underwater observation chamber.

The NOAA Ship *Malcolm Baldrige* was built by the Toledo, Ohio, plant of the American Shipbuilding Company under the supervision of the U.S. Maritime Administration. The keel was laid September 5, 1967, and the ship was launched October 5, 1968. The ship was originally named the *Researcher* after the schooner *Research*, which served in the Philippines with the U.S. Coast and Geodetic Survey from 1875 to 1910. In 1988 the ship was renamed the *Malcolm Baldrige*, for the U.S. Secretary of Commerce who served with distinction from January 20, 1981, until his death on July 25, 1987.



**National Oceanic and
Atmospheric
Administration**